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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,444

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Marc Husemann

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EXAMINER

KAUCHER, MARK S

ART UNIT

PAPER NUMBER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/529,444	<b>Applicant(s)</b> HUSEMANN ET AL.	
	<b>Examiner</b> MARK S. KAUCHER	<b>Art Unit</b> 4131	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/04/06.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/13/2005 and 4/11/2005</u> .                                 | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

*Claim 4 is objected to because of the following informalities: claim 4 does not end in a period. Appropriate correction is required.*

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the method of making a polymer by mixing an (meth)acrylate and an (meth)acrylated nitroxide derivative to form a copolymer. It also adds that the copolymer is produced by preforming the (meth)acrylate polymer and introducing the nitroxide, which is inconsistent with the prior statement that ~~does~~ requires forming the copolymer directly. Claim 1 also is ambiguous to whether the weight percentage of the nitroxide derivative is of the monomer starting amount or percentage found in the copolymer. One of ordinary skill in the art therefore would not be able to determine the method of polymerizing which the instant claim is intended to recite.

*Claim 1 recites the limitation "the first alternative" in the last line. There is insufficient antecedent basis for this limitation in the claim.*

Claim 4 recites the limitation of the nitroxide derivative of formulas 1 and 2, which have X groups attached. The character X is never defined in the claims. One of ordinary skill in the art therefore would not be able to determine the method of polymerizing which the instant claim is intended to recite.

Claim 11 recites the limitation "the individual polystyrene blocks" in the copolymer. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-7, 10, 11, 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Solomon et al. (WO-0135280).

As to claims 1, 3, 5, and 13, Solomon et al. recites a method for producing copolymeric adhesives. See page 1, lines 9-19. The method entails free radical polymerization of a mixture of monomers of methyl methacrylate and 25% by weight

methacrylated nitroxide derivatives (alkoxy amine) which fits the general formula II. See example 21 and compound 21.

As to claim 2, Solomon et al. recites a method which entails free radical polymerization to form a copolymer with isobutyl methacrylate (having a c4 alkyl chain) and a 15.7% by weight of a nitroxide derivative that fit into the limits of formulas 1 and 2. See example 17 and compound 17.

As to claim 4, Solomon et al. discloses using nitroxide derivative of the general formula 1, where  $R_1$ - $R_2$ ,  $R_{6-7}$  are methyls and  $R_{3-5}$  are the function group H. See compounds 18 and 19.

As to claim 6, Solomon et al. recites that the polymerization takes place in ethyl acetate (a solution). See example 21.

As to claim 7, 10, 15, 16 and 17, Solomon et al. discloses an additional step of adding further monomer (consisting of either styrene, acrylate, or methacrylate) to the nitroxide-modified polyacrylate and increasing the temperature to at least 100°C. The nitroxide controlled free-radical polymerization is initiated by the cleavage of the nitroxide derivative along the chain to give a "graft" copolymer (comb block polymer). See examples 41-47 and Figure 1. The block copolymer can be used in adhesives and can be used as a coating for sheets. See page 1, lines 9-19.

As to claim 11, Solomon et al. discloses that the styrene is about 12 units, which appears to be about a molecular weight of 1250 g/mol, which falls within the range recited in claim 11. See example 44.

As to claims 18 and 19 Solomon et al. disclose a comb block copolymer article that contains additives and auxiliaries such as light petroleum and ethyl acetate. See example 44.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8 ,9 and 12 are rejected under 35 U.S.C. 103(a) as being obvious over Solomon et al.

As to claim 8 and 9, Solomon et al. teaches a free radical polymerization of a mixture of monomers of methyl methacrylate and 25% by weight methacrylated nitroxide derivatives (alkoxy amine) which fits the general formula II. See compounds 18, 19, 21 and example 21. Graft polymerization is initiated via adding monomer (methacrylate) to the nitroxide-modified copolymer and increasing the temperature to at least 100°C. See compound 43 and example 45 and figure 1.

Solomon et al. is silent on further graft polymerization via addition of further monomers at elevated temperatures via a hotmelt process.

As to claim 8 and 9, Solomon et al. additionally teaches a free radical polymerization of a mixture of monomers of styrene and 16% by weight methacrylated nitroxide derivatives (alkoxy amine) which fits the general formula II. See compounds 18, 19, 20 and example 20. Graft polymerization is initiated via adding monomer (methyl acrylate) to the nitroxide-modified copolymer and increasing the temperature to at least 100°C. See compound 40 and example 42 and figure 1. Extension of the graft polymerization is initiated via addition of further monomers (methyl acrylate) at an elevated temperature that is a hotmelt process. See compound 40 and example 42 and figure 1.

It would have been obvious to one with ordinary skill in the art at the time the invention was made by modifying Solomon et al with further graft polymerization via

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addition of further monomers at elevated temperatures via a hotmelt process mentioned in Solomon et al. because the one would want to easily increase the molecular weight in a controlled manner.

As to claim 12, Solomon et al. teaches of a nitroxide-modified polyacrylate made via free-radical polymerization. See example 17 and compound 17.

Solomon et al. is silent on the molecular weight of the nitroxide-modified polyacrylate.

Solomon et al. teaches of a nitroxide-modified butadiene with a molecular weight of about 500,000 g/mol that falls within the range of claim 12. See example 16 and product 16. The molecular weight is calculated from the molecular weight of the starting material and the grafting yield of the nitroxide.

It would have been obvious to one with ordinary skill in the art at the time the invention was made by modifying Solomon et al to yield a nitroxide-modified polyacrylate made via free-radical polymerization with a molecular weight of 500,000 g/mol mentioned in Solomon et al. because one would want to control the molecular weight to manipulate the properties.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK S. KAUCHER whose telephone number is (571)270-7340. The examiner can normally be reached on Monday to Friday, 8:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-275-5007. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/  
Supervisory Patent Examiner  
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Examiner, Art Unit 4131